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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,186

07/25/2006

Kazuhiro Sugie

043888-0490

8019

53080 7590 02/20/2009  
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EXAMINER

HAN, KWANG S

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

02/20/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,186	<b>Applicant(s)</b> SUGIE ET AL.	
	<b>Examiner</b> Kwang Han	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/25/06, 8/27/07</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

**LEAD STORAGE BATTERY**

Examiner: K. Han    SN: 10/587,186    Art Unit: 1795    February 20, 2009

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

1. The information disclosure statement filed July 25, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the JP 3102000 document (no copy present) referred to therein has not been considered.

***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Yonemura (JP 2003-346888, machine translation) in view of Ohba et al. (US 5989750).

Regarding claim 1, Yonemura is directed towards a lead storage battery

[Abstract] comprised of the following:

- a plurality of negative electrode plates (Drawing 1) each with a negative electrode grid (6), having a handle part (5, tab), and a negative electrode active material [0014] retained by the grid,
- a plurality of positive electrode plates each with a positive electrode grid, having a handle part (tab), and a positive electrode active material retained by the grid [Abstract] (Drawing 1),
- a plurality of separators (3) separating the positive electrode plate and the negative electrode plate,
- a positive electrode connecting member (10, 8) comprising a positive electrode shelf (8, positive electrode strap) to which the handle part (tabs)

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of each positive electrode plate of the electrode plate pack is connected (Drawing 1),

- a positive electrode connecting body (10) provided at the positive electrode shelf,
- a negative electrode connecting member (7, 9) comprising a negative electrode strap (7) to which the handle part (tab) of each negative electrode plate of the electrode plate pack is connected (Drawing 1), and
- a negative electrode connecting body (9) provided at the negative electrode strap (Drawing 1) [0010-0020], and
- the positive electrode grid, the negative electrode grid, the positive electrode connective member, and the negative electrode connecting member comprise a Pb-alloy including Ca or Sn [0012-0013],
- a negative electrode grid (6) that includes Sb [0014] but not in the handle part [0013].

Yonemura is silent towards the separator including silica.

Ohba teaches a lead-acid battery separator which includes an acid-resisting, oxidation-resisting inorganic filler such as silica (Column 3, Lines 9-30) for the benefit of forming a separator with high-rate discharge characteristics at low-temperature and endurance at a high temperature (Column 2, Lines 41-44). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a separator with silica inorganic filler because Ohba teaches it forms a separator which has high-rate discharge characteristics at low-temperature and in endurance at a high temperature.

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Regarding claims 2 and 3, the teachings of Yonemura and Ohba as discussed above are herein incorporated. Ohba further teaches a separator comprising a microporous synthetic resin sheet (Column 3, Lines 9-46) with examples having 65 wt % of silica particles (Column 5, Table 1, Sample No. 1) dispersed and a fiber mat (Column 4, Lines 35-47) with examples having 30 wt % silica (Column 5, Table 1, Samples No. 3-5) dispersed. The compositional changes within the differing samples shown in tables 1 and 3 show that the composition including variations in silica content have an effect on the oxidation resistance teaching it as a result effective variable (column 5). The courts have held that optimization of a results effective variable such as the silica content is not novel. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 4, Yonemura discloses a negative electrode active material layer including 0.001 to 0.1 weight % [0006-0007]. It has been held that where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (MPEP 2144.05)

Regarding claim 5, Yonemura discloses a negative electrode grid formed from a Pb-Ca alloy with a Pb-Sb alloy layer [0013].

Regarding claim 6, Yonemura discloses the Pb-Sb alloy layer to be formed on the surface of the negative electrode grid which is a part of the negative electrode plate would include the lower region of the negative electrode plate [0013].

Regarding claim 7, Yonemura discloses a positive electrode grid comprised of a Pb alloy with a lead alloy layer of the surface that contains Sn [0008].

Regarding claim 8, the teachings of Yonemura and Ohba as discussed above are herein incorporated. Yonemura is silent as to the shape of the separator.

Ohba teaches the separator to be formed in a more reliable shape for holding the electrode such as an envelope (bag) to provide a greater sense of security (Column 1, Lines 27-52; Claim 10). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a separator for a lead-acid battery with an envelope shape for the benefit of having a more reliable shape to hold the electrode and provide a greater sense of security. The courts have also held that the configuration of the claimed separator was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the separator was significant. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

### ***Double Patenting***

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1, 2, 3, 4, and 8 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 3, 4, and 6 of copending Application No. 10/585078 (hereinafter referred to as Sugie '078) in view of Yonemura (JP 2003-346888, machine translation).

Claims 1, 2, 3, 4, and 6 of Sugie '078 recite all the limitations of the instant claims 1, 2, 3, 4, and 8 except that of the negative electrode grid further includes Sb in a part thereof excluding said tab.

Yonemura teaches a negative electrode grid (6) that includes Sb [0014] but not in the handle part [0013] because it provides a highly reliable lead-acid battery by suppressing corrosion of the tab part. It would have been obvious to one of ordinary skill in the art at the time of the invention to have a negative electrode grid with Sb but not in the handle part because Yonemura teaches it provides for a highly reliable lead-acid battery by suppressing corrosion of the tab part.

This is a provisional obviousness-type double patenting rejection.

8. Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No.



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10/587187 (hereinafter referred to as Sugie '187) in view of Yonemura (JP 2003-346888, machine translation) and Ohba et al. (US 5989750).

Claim 1 of Sugie '078 recite all the limitations of the instant claims 1 except that of the negative electrode grid further includes Sb in a part thereof excluding said tab and a separator with silica.

Yonemura teaches a negative electrode grid (6) that includes Sb [0014] but not in the handle part [0013] because it provides a highly reliable lead-acid battery by suppressing corrosion of the tab part. It would have been obvious to one of ordinary skill in the art at the time of the invention to have a negative electrode grid with Sb but not in the handle part because Yonemura teaches it provides for a highly reliable lead-acid battery by suppressing corrosion of the tab part.

Ohba teaches a lead-acid battery separator which includes an acid-resisting, oxidation-resisting inorganic filler such as silica (Column 3, Lines 9-30) for the benefit of forming a separator with high-rate discharge characteristics at low-temperature and endurance at a high temperature (Column 2, Lines 41-44). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a separator with silica inorganic filler because Ohba teaches it forms a separator which has high-rate discharge characteristics at low-temperature and in endurance at a high temperature.

This is a provisional obviousness-type double patenting rejection.

***Contact/Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./  
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795